

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

First Named Inventor: MITTELSTADT, WILLIAM A.
Application No.: 09/888943 Confirmation No.: 9282
Filed: June 25, 2001 Group Art Unit 3772
Title: RESPIRATOR VALVE

BRIEF ON APPEAL

Mail Stop: Appeal Brief-Patents
Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

CERTIFICATE OF TRANSMISSION [37 CFR § 1.8(a)]

I hereby certify that this correspondence is being transmitted to United States Patent and Trademark Office on the date shown below via the Office electronic filing system.

December 17, 2008

Date

/Susan M. Dacko/

Signed by: Susan M. Dacko

Dear Sir:

This is an appeal from the final Office Action mailed on June 27, 2008, in light of the Advisory Action mailed August 6, 2008, finally rejecting claims 27-47 and 49-71.

Fees

- ☒ Any required fee under 37 CFR § 41.20(b)(2) will be made at the time of submission via EFS-Web. In the event fees are not or cannot be paid at the time of EFS-Web submission, please charge any fees under 37 CFR § 1.17 which may be required to Deposit Account No. 13-3723.
- ☒ Please charge any additional fees associated with the prosecution of this application to Deposit Account No. 13-3723. This authorization includes the fee for any necessary extension of time under 37 CFR § 1.136(a). To the extent any such extension should become necessary, it is hereby requested.
- ☒ Please credit any overpayment to the same deposit account.

A Notice of Appeal in this application was filed on October 1, 2008.

REAL PARTY IN INTEREST

The real party in interest is 3M Company (formerly known as Minnesota Mining and Manufacturing Company) of St. Paul, Minnesota and its affiliate 3M Innovative Properties Company of St. Paul, Minnesota.

RELATED APPEALS AND INTERFERENCES

Appellants are unaware of any related appeals or interferences.

STATUS OF CLAIMS

Claims 27-47 and 49-71 are pending and are the subject of this appeal.

STATUS OF AMENDMENTS

No amendments have been filed after the final rejection.

SUMMARY OF CLAIMED SUBJECT MATTER

A concise explanation of each of the independent claims involved in the appeal, which refers to the specification by page and line number, and to the drawing, if any, by reference is set forth below:

Claim 28	
Limitation	Specification Page and Line Numbering
a respirator	page 2, line 28
unidirectional valve	page 2, line 29
face mask	page 2, line 29
one opening for receiving unidirectional valve	page 2, lines 29-30
valve body	page 2, line 31
valve flap	page 2, line 29; page 3, line 1
first portion of valve flap	page 3, line 1
second portion of valve flap	page 3, line 2
curvature of Valve flap from first end to second end when not attached to valve body	page 6, lines 5-7; Fig. 3
curvature flattened when valve flap seals the opening	page 6, lines 11-14; Fig. 4

Claim 38	
Limitation	Specification Page and Line Numbering
a respirator	page 2, line 28
face mask	page 2, line 29
opening formed therethrough	page 2, lines 29-30
unidirectional valve located over the opening in the face mask	page 2, line 32; page 3, line 1
valve flap attached to the face mask over the opening	page 5, lines 23-31; Figs. 1 and 2
curvature from a first end to a second end when the valve flap is not attached to the face mask	page 6, lines 5-7; Fig. 3
curvature of the valve flap is at least partially flattened when the valve flap seals the opening in the face mask	page 6, lines 11-14; Fig. 4; page 11, lines 5-7

Claim 51	
Limitation	Specification Page and Line Numbering
a respirator	page 2, line 28
a unidirectional valve	page 2, line 29
a face mask	page 2, line 29
unidirectional valve attached to the face mask over an opening formed through the face mask	page 2, line 32; page 3, line 1; page 5, lines 13-14
valve body	page 2, line 31
valve opening	page 5, lines 16-18
cantilevered valve flap	Figs. 3, 4, and 7
first end attached to the valve body	page 2, line 31
a second end located opposite from the first end	page 6, line 5; Figs. 3 and 4
first end of the valve flap is attached to the valve body outside of the valve opening	Figs. 1-3; page 12
a curvature from the first end to the second end when the valve flap is not attached to the valve body	page 6, lines 5-7; Fig.3
at least a portion of the curvature of the valve flap is at least partially flattened when the valve flap seals the valve opening	page 6, lines 11-14; Fig. 4; page 11, lines 5-7

Claim 61	
Limitation	Support
a respirator	page 2, line 28
a face mask	page 2, line 29
an opening formed therethrough	page 2, line 32
unidirectional valve located over the opening in the face mask	page 2, line 32; page 3, line 1
cantilevered valve flap	page 11, lines 17-19; Figs. 3, 4, and 7
a first end attached to the face mask	page 11, lines 19-20
cantilevered valve flap extends over the opening	page 12, lines 6-7
curvature from the first end to a second end when the cantilevered valve flap is not attached to the face mask	page 6, lines 5-7; Fig. 3
curvature of the cantilevered valve flap is at least partially flattened when the valve flap seals the opening in the face mask	page 6, lines 11-14; Fig. 4; page 11, lines 5-7

GROUND OF REJECTION TO BE REVIEWED ON APPEAL

First Ground of Rejection

Claims 27-32, 34-42, 44-55, 57-65, and 67-71 have been rejected under 35 USC § 102(b) as being anticipated by U.S. Patents Nos. 1,213,249 to Lübeck.

Second Ground of Rejection

Claims 33, 43, 56, and 66 have been rejected under 35 USC § 103(a) for claiming subject matter that would have been obvious to a person of ordinary skill over the combined teachings of Lübeck and U.S. Patent 5,509,436 to Japuntich et al.

Third Ground of Rejection

Claims 28, 38, and 48-50 have been rejected under the doctrine of obviousness type double patenting.

ARGUMENT

First Ground of Rejection

In making this rejection, the Examiner contends that Lübeck describes a valve flap that has "a curvature from the first end to a second end when not attached to the valve body or the facemask." More particularly, the Examiner states that "Figure 1 of the Lübeck reference shows a valve flap having a curvature from a first end to a second end when not attached to the valve body or the face mask (the spots where reference characters 1 and 24 are pointing at define a curvature from the first end 24 to a second end 1)."

Lübeck's Figure 1, however, does not show a valve flap that "has a curvature from a first end to a second end when the valve flap is not attached to the valve body". Lübeck only shows that it's valve element has a slight curvature at ends 24 and 1:

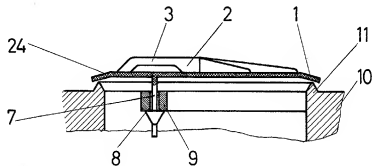


Figure 1 of Lübeck.

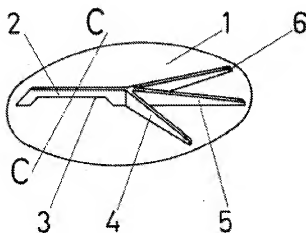


Figure 5 of Lübeck.

In addition, Lübeck does not describe a unidirectional valve where "at least a portion of the curvature of the valve flap is at least partially flattened when the valve flap seals the valve opening." On page 11 of their specification, applicants explain that the "at least partially flattening out" of the of flap "provides the necessary sealing force to keep the valve diaphragm 56 in its closed position when not subjected to other forces." Thus, applicants' invention pertains to the use of a valve flap that is curved from a first end to a second end *where a portion of the curvature becomes flattened out when the valve flap seals the opening*. This particular flattening out of the flap is beneficial in that it enables a bias to be created, which provides the necessary sealing force to keep the valve diaphragm closed. Even if Lübeck's flap was considered to have a curvature from a first end to a second end, this curvature in no way becomes flattened out when the flap seals the opening. Lübeck's failure to teach this basic feature of applicants' invention establishes that it does not anticipate applicants' invention under the terms of 35 USC § 102.

Second Ground of Rejection

Not only does Lübeck fail to teach or suggest the structure of applicants invention so as to anticipate it under 35 USC § 102(a), but it also provides no teaching that would have rendered applicants' invention obvious to a person of ordinary skill, within the meaning of 35 USC § 103(a). As indicated above, Lübeck fails to teach two important features of applicants' invention. And it also fails to address the benefits that those features provide.

The secondary reference to US patent 5,509,436 to Japuntich et al. (Japuntich) adds little or nothing to what is lacking in Lübeck. Japuntich also fails to suggest providing a valve flap that is curved when not attached to the valve body and that becomes at least partially flattened out when the valve flap seals the opening.

Japuntich too fails to recognize the benefit of this aspect of applicants' inventions namely, providing a sufficient seal to keep the valve closed under any orientation when not subject to external forces such as from a wearer's exhalation.

Because Lübeck and Japuntich together fail to recognize or suggest the structure of applicants' invention and the benefits that stem from that structure, these documents would not have suggested applicants' invention to a person of ordinary skill within the meaning of 35 USC § 103.

Third Ground of Rejection

A terminal disclaimer has been submitted which renders this issue moot.

CONCLUSION

For the foregoing reasons, appellants respectfully submit that the outstanding rejections under 35 USC § 102 and § 103 have been made in error. Please reverse the decision below.

Respectfully submitted,

December 17, 2008

Date

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3M Innovative Properties Company
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CLAIMS APPENDIX

27. The respirator of claim 28, wherein the valve flap is removably attached to the valve body.
28. A respirator having a unidirectional valve, comprising:
a face mask having at least one opening for receiving a unidirectional valve; and
a unidirectional valve comprising:
a valve body comprising a valve opening; and
a valve flap having a first portion attached to the valve body and an adjacent second portion that seals the valve opening, wherein the valve flap has a curvature from a first end to a second end when the valve flap is not attached to the valve body, and further wherein at least a portion of the curvature of the valve flap is at least partially flattened when the valve flap seals the valve opening.
29. The respirator of claim 28, wherein the valve opening is generally planar, and wherein the valve flap curvature biases the valve flap toward the valve opening when the valve flap is attached to the valve body to seal the valve opening.
30. The respirator of claim 28, wherein the valve flap curvature biases the valve flap toward the valve opening to seal the valve opening, and wherein the bias of the valve flap toward the valve opening is sufficient to seal between the valve opening in any orientation of the unidirectional valve.
31. The respirator of claim 28, wherein the curvature in the valve flap comprises a constant curvature from the first end to the second end.
32. The respirator of claim 28, wherein the curvature in the valve flap varies from the first end to the second end.

33. The respirator of claim 28, wherein the face mask is formed of a filtering material.
34. The respirator of claim 28, wherein the unidirectional valve is an exhalation valve.
35. The respirator of claim 28, wherein the unidirectional valve is an inhalation valve.
36. The respirator of claim 28, wherein the valve flap further comprises a top surface, a bottom surface, at least one support element extending from the top surface of the valve flap, and wherein the at least one support element provides the curvature in the valve flap that is at least partially flattened when the valve flap seals the valve opening.
37. The respirator of claim 28, wherein the valve flap further comprises a top surface, a bottom surface, wherein the valve flap further comprises a plurality of support elements extending from the top surface, wherein each of the plurality of support elements is spaced from each adjacent support element, and wherein the plurality of support elements provide the curvature in the valve flap that is at least partially flattened when the valve flap seals the valve opening.
38. A respirator comprising:
a face mask comprising an opening formed therethrough; and
a unidirectional valve located over the opening in the face mask, the unidirectional valve comprising a valve flap attached to the face mask over the opening, the valve flap comprising a curvature from a first end to a second end when the valve flap is not attached to the face mask, wherein the curvature of the valve flap is at least partially flattened when the valve flap seals the opening in the face mask.
39. The respirator of claim 38, wherein the at least partially flattened curvature of the valve flap creates a bias that is substantial enough to keep the valve flap sealed over the opening in all orientations.

40. The respirator of claim 38, wherein the curvature of the valve flap comprises a constant curvature.
41. The respirator of claim 38, wherein the curvature of the valve flap varies from the first end to the second end.
42. The respirator of claim 38, wherein the opening is generally planar such that the curvature of the valve flap attached to the face mask over the opening is flattened when the valve flap seals the opening in the face mask.
43. The respirator of claim 38, wherein the face mask is formed of a filtering material.
44. The respirator of claim 38, wherein the unidirectional valve is an exhalation valve.
45. The respirator of claim 38, wherein the unidirectional valve is an inhalation valve.
46. The respirator of claim 38, wherein the valve flap further comprises a top surface, a bottom surface, and at least one support element extending from the top surface of the valve flap, wherein the at least one support element provides the curvature in the valve flap that is at least partially flattened when the valve flap seals the opening.
47. The respirator of claim 38, wherein the valve flap further comprises a top surface, a bottom surface, wherein the valve flap further comprises a plurality of support elements extending from the top surface, wherein each of the plurality of support elements is spaced from each adjacent support element, and wherein the plurality of support elements provide the curvature in the valve flap that is at least partially flattened when the valve flap seals the valve opening.

49. The respirator of claim 28, wherein the valve flap comprises a cantilevered valve flap, and wherein the first portion of the valve flap is attached to the valve body outside of the valve opening.

50. The respirator of claim 38, wherein the valve flap comprises a cantilevered valve flap, and wherein the first end of the cantilevered valve flap is attached to the face mask.

51. A respirator including a unidirectional valve, the respirator comprising:
a face mask; and

a unidirectional valve attached to the face mask over an opening formed through the face mask, wherein the unidirectional valve comprises:

a valve body comprising a valve opening; and

a cantilevered valve flap comprising a first end attached to the valve body and a second end located opposite from the first end, wherein the first end of the valve flap is attached to the valve body outside of the valve opening, and wherein the valve flap comprises a curvature from the first end to the second end when the valve flap is not attached to the valve body, and further wherein at least a portion of the curvature of the valve flap is at least partially flattened when the valve flap seals the valve opening.

52. The respirator of claim 51, wherein the valve opening is generally planar, and wherein the valve flap curvature biases the valve flap toward the valve opening when the valve flap is attached to the valve body to seal the valve opening.

53. The respirator of claim 51, wherein the valve flap curvature biases the valve flap toward the valve opening to seal the valve opening, and wherein the bias of the valve flap toward the valve opening is sufficient to seal between the valve opening in any orientation of the unidirectional valve.

54. The respirator of claim 51, wherein the curvature in the valve flap comprises a constant curvature from the first end to the second end.
55. The respirator of claim 51, wherein the curvature in the valve flap varies from the first end to the second end.
56. The respirator of claim 51, wherein the face mask is formed of a filtering material.
57. The respirator of claim 51, wherein the unidirectional valve is an exhalation valve.
58. The respirator of claim 51, wherein the unidirectional valve is an inhalation valve.
59. The respirator of claim 51, wherein the valve flap further comprises a top surface, a bottom surface, at least one support element extending from the top surface of the valve flap, and wherein the at least one support element provides the curvature in the valve flap that is at least partially flattened when the valve flap seals the valve opening.
60. The respirator of claim 51, wherein the valve flap further comprises a top surface, a bottom surface, wherein the valve flap further comprises a plurality of support elements extending from the top surface, wherein each of the plurality of support elements is spaced from each adjacent support element, and wherein the plurality of support elements provide the curvature in the valve flap that is at least partially flattened when the valve flap seals the valve opening.
61. A respirator comprising:
a face mask comprising an opening formed therethrough; and
a unidirectional valve located over the opening in the face mask, the unidirectional valve comprising a cantilevered valve flap comprising a first end attached to the face mask, wherein the cantilevered valve flap extends over the opening, the cantilevered valve flap comprising a curvature from the first end to a second end when the cantilevered valve flap is not attached to

the face mask, wherein the curvature of the cantilevered valve flap is at least partially flattened when the valve flap seals the opening in the face mask.

62. The respirator of claim 61, wherein the at least partially flattened curvature of the cantilevered valve flap creates a bias that is substantial enough to keep the cantilevered valve flap sealed over the opening in all orientations.

63. The respirator of claim 61, wherein the curvature of the cantilevered valve flap comprises a constant curvature.

64. The respirator of claim 61, wherein the curvature of the cantilevered valve flap varies from the first end to the second end.

65. The respirator of claim 61, wherein the opening is generally planar such that the curvature of the cantilevered valve flap attached to the face mask over the opening is flattened when the cantilevered valve flap seals the opening in the face mask.

66. The respirator of claim 61, wherein the face mask is formed of a filtering material.

67. The respirator of claim 61, wherein the unidirectional valve is an exhalation valve.

68. The respirator of claim 61, wherein the unidirectional valve is an inhalation valve.

69. The respirator of claim 61, wherein the cantilevered valve flap further comprises a top surface, a bottom surface, and at least one support element extending from the top surface of the cantilevered valve flap, wherein the at least one support element provides the curvature in the cantilevered valve flap that is at least partially flattened when the cantilevered valve flap seals the opening.

71. The respirator of claim 61, wherein the cantilevered valve flap further comprises a top surface, a bottom surface, wherein the cantilevered valve flap further comprises a plurality of support elements extending from the top surface, wherein each of the plurality of support elements is spaced from each adjacent support element, and wherein the plurality of support elements provide the curvature in the cantilevered valve flap that is at least partially flattened when the cantilevered valve flap seals the valve opening.

EVIDENCE APPENDIX

None.

RELATED PROCEEDINGS APPENDIX

None.